FORUM

CRADAs—Partnerships That Speed Technology to Users

Consider the constant dilemma of the farmer: so many choices to make—and no crystal ball to predict the various outcomes.

Today's crop producer has available many choices of improved seeds, different methods to control pests, and ways to improve the soil for productivity and best nutritional environment for the crop. But science has still not found a way to look into the future to guide the farmer months before the harvest on how to choose the best practices to maximize yield.

However, technology has improved enough that more accurate descriptions of problems in the field can be reported to the farmer as soon as they occur. Think of this as the agricultural equivalent of just-in-time parts delivery to a car assembly plant.

The cover story in this issue describes development of technology that will allow farmers to receive reports on their crop health and growth in a timely manner, so they can take action to correct problems before they get out of hand. Receiving this information just in time will allow the farmer to be more cost effective by targeting use of expensive inputs, which will limit adverse effects to the surrounding environment.

This promising line of research involves USDA's Agricultural Research Service and RESOURCE21, LLC, of Englewood, Colorado, working under a cooperative research and development agreement (CRADA). This partnership links a team of scientists from six ARS locations with four private companies in multidisciplinary systems research required to build the framework for the farm manager. It will provide accurate information while there is still time to apply a correction.

The agreement allows experts in science, production agriculture, and marketing to build the complex information system needed to make precision agriculture a real-time working tool.

ARS scientists have used CRADAs to expand expertise and speed development of many technologies that are now used by farmers or found in the grocery store. For example, the oil from a new crop, meadowfoam, is now in great demand for use in specialty cosmetics and industrial lubricants because of a patent license and CRADA. In 1998, ARS signed the 800th agreement, and this total should reach 1,000 in the year 2000.

CRADAs have provided a new means to develop ARS discoveries by providing an opportunity for the public sector to partner with private companies to maximize each other's strengths. This has proven to be a win-win-win scenario.

Working with RESOURCE21 has provided additional expertise and resources to ARS that have accelerated this research program. For the companies, it has allowed them to test their results against real field conditions in a variety of different growing areas. And it will be a win for the farmers when applied to their unique situations.

CRADAs were authorized by the Federal Technology Transfer Act of 1986 as a way of enhancing the ability of federal research laboratories to work with industry to commercialize technology. These agreements are unique in that the cooperator is granted the right to negotiate an exclusive license in a defined field of use for government-owned inventions made under the agreement. In addition, information developed under the agreement may be treated as confidential for up to 5 years.

These provisions have provided the incentive to encourage private-sector partnerships to develop ideas that are high risk and/or unproved in the marketplace. The ARS Office of Technology Transfer (OTT) negotiates about 100 new CRADAs each year. Currently, there are nearly 300 active CRADAs, or more than 15 per 100 research scientists—a level that is among the highest in government.

It is widely recognized that an important consideration in technology development is "industry pull"; that is, the degree to which industry is ready or willing to use the new technology. CRADAs provide a pull incentive for companies to approach ARS scientists with proposals for partnerships long before a technology is ready for patenting, or even before it has been confirmed that an idea will work.

Because both partners bring value to the project, ARS gains access to expertise, facilities, equipment, and proprietary information, processes, and products that would not otherwise be available. This allows ARS to develop critical technologies that it cannot do alone and to get an idea to the market much sooner.

In fiscal year 1998, CRADAs brought in over $6.2 million in cash to ARS. More important is the agency's additional operating funds because of in-kind contributions by cooperators.

The decision of ARS to enter into a CRADA is neither automatic nor arbitrary. Each one is reviewed by scientists, line managers, national program managers, and OTT. The primary decision factor is whether the partnership will enhance the transfer of technology for the ultimate benefit of the tax-paying public.

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